Environmental Protection Branch Annual Report

2002-2003

EPB 251

Saskatchewan Environment
Environmental Protection Branch

SASKATCHEWAN ENVIRONMENT'S CORE GOALS AND OBJECTIVES

Core Goal	Objectives
A Clean and Healthy Environment	1. Clean Water a. Safe municipal drinking water b. Good quality surface and ground water 2. Clean Air 3. Clean Land 4. Minimize risk and adverse impact of wildland fires on people, property and natural resources
Protect Ecosystem Health and Natural Abundance of Renewable Resources	5. Species and habitat at risk are protected 6. Biodiversity and ecosystems are sustained
Provide Fair Opportunity for Sustainable Use, Development and Enjoyment of Natural Renewable Resources	7. Equitable allocation of natural renewable resources 8. Accessible recreational and education opportunities on provincial park and Crown resource lands 9. Increase economic benefits based on sustainable use of natural renewable resources 10. First Nations and Métis rights and their interests in the use of natural resources are met through co-operative means

The above table identifies the strategic core goals and objectives, which Saskatchewan Environment (SE) has proposed for the four-year period ending in 2004. The Saskatchewan Environment Annual Report 2002-2003 outlines the activities conducted by the department to achieve these goals.

The following report provides additional detail on the key actions carried out by the Environmental Protection Branch in support of the department's Objectives 1, 2 and 3 during the April 1, 2002 to March 31, 2003 fiscal year.

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1.0 Branch Overview

1.1 Branch Mandate

The protection and enhancement of the environment in a manner that promotes the physical, economic and social well-being of the people of Saskatchewan today and in the future.

1.2 Branch Organization

A number of changes to the Branch occurred this fiscal year in response to the contamination incidents at Walkerton in 2000 and North Battleford in 2001.

Client Services

The Client Services Section integrates internal and external client/stakeholder needs into environmental protection initiatives through consultative processes. The section identifies, reviews and establishes and maintains client relationships; co-ordinates and supports delivery of programs of both provincial and regional focus. The section leads policy development in the areas of solid waste management including regional waste management systems, stewardship, recycling and pollution prevention. The Client Services Section also administers and develops funding mechanisms under the Centenary Fund in the areas of environmental cleanups, orphaned service stations and regional waste management systems.

Drinking Water Quality Section

The Drinking Water Quality Section (DWQS), which was created in April 2002, carries responsibility for the management and coordination of the department's drinking water and municipal wastewater regulatory program. The section works closely with Eco-region staff to manage and implement the drinking water and wastewater for its client base across the province. The DWQS researches and develops drinking water and wastewater policy, guidelines, objectives, standards, strategies, regulations and legislation to build and support the regulatory program. The

section develops and implements department protocols for elements of the program such as inspection, compliance reporting, compliance/enforcement and waterworks safety assessment and provides training and expertise to department regional staff implementing the program. The section tracks water and wastewater management activities, prepares strategic reports, compliance reports, the annual Status of Drinking Water Report prepared for the Legislature as well as conducting a range of public education and communication activities. The DWQS performs permitting for new water and wastewater construction projects, liaises with the Operator Certification Board and serves on a range of provincial and interprovincial committees to coordinate and further drinking water and wastewater management in the province.

Ecological Monitoring and Assessment Section

The Ecological Monitoring & Assessment Section designs/determines indexes and indicators to measure ecosystem health and progress towards ecosystem management goals; designs monitoring programs to collect information for trend analysis and use in ecosystem indexes; receives, compiles, assesses and interprets environmental data to understand impacts of activities on ecosystem components; and leads/assists in the evaluation of criteria, guidelines, models, programs and activities designed to conserve resources, preserve the quality of the environment or reduce risk to the environment or health.

Environmental Information Section

The Environmental Information Section analyses, designs, develops and maintains computerized information for Environmental systems for the Department. The information systems currently maintain computerized water quality database (ESQUADAT), Storage of hazardous materials (SFMP), solid waste licensing and sensitivity (Landfills), spills, municipal and private licensing requirements for water and sewage works (Windat) for the province. The Esquadat system provides for storage, analysis and ongoing updates of data including: drinking water quality, surface and groundwater quality, industrial and municipal effluent quality. Data management services are provided to

department branches, other government agencies, industrial and municipal clients, and the public.

The Section is presently leading a project called Saskatchewan Environment Environmental Management System (SEEMS). This informational system will incorporate licensing, inspections, incident and water quality enforcement, chemical water quality and provide public access to information and chemical water quality concerning licensed drinking water facilities in the Province of Saskatchewan.

Policy and Standards

The Policy & Standards Section was created in April, 2002 by the amalgamation of the former Planning and Standards sections. The new section coordinates and develops branch policy, programs and activities; develops technical standards and guidelines; leads branch legislative and regulatory initiatives; leads issue management response to emerging provincial environmental protection issues; coordinates branch work planning and corporate strategic plan initiatives; evaluates branch programs and initiatives; coordinates federal-provincial environmental protection activities; and leads public involvement processes for policy, planning and standards development initiatives. Most similar activities for drinking water management are addressed by the Drinking Water Quality Section.

1.3 Branch Purpose

To balance people's interaction with the environment to protect human health and ecosystem integrity.

1.4 Branch Principles

EPB's principles, as set out during the reorganization, which became effective January 1, 1997, are as follows:

Risk Management

- ✓ requirements are applied in recognition of actual risks to ecosystems
- ✓ deployment of resources to activities that pose the greatest risk to the environment

Pollution Prevention

- ✓ efforts aimed at prevention of pollution rather than *cleanup* and *remediation*
- ✓ includes life cycle management and stewardship approaches

Minimal Intervention

- ✓ early involvement in mandated initiatives to gain broad success without the need for detailed regulation of large numbers of facilities
- ✓ being less intrusive and sharing responsibility with others for protecting the environment

Ecosystem Focus

- ✓ considering the needs for ecosystem protection in all activities
- ✓ ecosystem protection decisions are based on sound science

Partnership Approach

- ✓ working with clients and partners to reduce impacts from smaller, dispersed activities which collectively pose a significant threat to the environment
- ✓ including stakeholders in setting goals and priorities

Empowering Regulations

- ✓ regulations, which empower action rather than specifying prescriptive step by step approaches for achieving results
- ✓ performance-based standards

- ✓ seeking alternatives to regulation, such as guidelines and codes of practice

Devolution

- ✓ aligning responsibility for environmental protection with the accountability for direct action

Regional Program Delivery

- ✓ delivery of environmental protection programs directly to clients occurs in the EcoRegions
- ✓ policy and program development occurs in Regina

2.0 The Year in Review

Many of the projects that are documented in this Annual Report were completed in cooperation or with assistance from other branches, departments or EcoRegions. The intent of this Annual Report is to capture the accomplishments and the work that EPB has contributed towards their achievement.

2.1 Top Accomplishments

- Enacted new environmental protection legislation (EMPA, 2002). Prepared a policy manual on the new Act.
- Enacted new Water Regulations, 2002 in response to the North Battleford Water Inquiry.
- Conducted and documented a strategic review of EPB's legislation & regulations and amendment plans for the next few years.
- Updated and posted on Environet (department's internal website) a host of new and updated environmental protection policies, guidelines and standards.
- A provincial water quality index for aquatic life, recreation and irrigation uses has been developed and was applied to three major watersheds. A provincial Air Quality Index was modified in to an Air Pollution Index, which more accurately reflects risk to human health.

In co-operation with the EcoRegions, EPB also:

- Delivered on several contaminated site clean-up, orphan site assessment and remediation and regional solid waste management initiatives under the Centenary Fund.
- Finalized a federal-provincial administrative agreement reducing overlap and duplication in the uranium industry.
- A risk assessment was conducted on all provincial air stressors to the environment for the purpose of streamlining permitting under The Clean Air Act. This approach has resulted in a decrease of at least 60% of the number of permits issued provincially.

- An MOU was signed with Alberta to manage trans-boundary acid deposition. The MOU focuses on modeling, monitoring and management activities to improve our understanding of the issue.

- Considerable effort was expended to begin the process of making information on wastewater quality available on Saskatchewan Environment's new internet accessible Environmental Management System.

Photo: Janice Keller

2.2 Clean Water

2.2.1 Safe Municipal Drinking Water

The highest priority use of our water resources is for the supply of safe drinking water to Saskatchewan residents. Since the contamination incidents at Walkerton in 2000 and North Battleford in 2001, Saskatchewan Environment and a number of other agencies have made changes in how government is organized and resourced to meet this objective. Many of the drinking water program improvements implemented over the last two years are aimed directly at providing the public with the facts about the quality of their drinking water supplies.

Key Actions for 2002-03

- As part of the North Battleford Water Inquiry recommendations, implemented revised water pollution and water works regulations and established a Drinking Water Quality Unit in the department.

  Completed a drinking water program review and the government's Long Term Safe Drinking Water Strategy was launched on April 5, 2002. A Drinking Water Quality Section was established in the Environmental Protection Branch of Saskatchewan Environment. Highlights of work by the section, in conjunction with the Eco-regions, during 2002-03 include:

  - Contribution to legislative changes dealing with drinking water and waste water for *The Environmental Management and Protection Act, 2002*;
  - Review and consultation activities associated with the repeal of *The Water Pollution Control and Waterworks Regulations* and promulgation of *The Water Regulations, 2002* on December 5, 2002;
  - Development and implementation of department protocols for staff training, inspection of waterworks, compliance and enforcement, quarterly reporting and management of bacteriological problems with waterworks;
  - Conducted 788 of the 787 required inspections based on the number of regulated works during the 2002-03 fiscal year;
  - Transfer and implementation of waterworks and wastewater works permitting activities within the department; and
  - Development of a comprehensive set of guidelines and standards as a complement to aid in the implementation of recent regulatory changes. This information was provided directly to waterworks owners near the end of the fiscal year.

- Publish an annual drinking water compliance report.

A Drinking Water Compliance Report was published in 2001-2002, and another in 2002-03. The latest version of the compliance report is available on Saskatchewan Environment's web site (www.se.gov.sk.ca). *EMPA, 2002* (proclaimed on October 1, 2002) mandates the preparation of an annual report to the legislature on the quality of drinking water in Saskatchewan. Finalization of the first report to the legislature is in July 2003.

- Implement an enhanced bacteriological notification and follow-up protocol complemented by a quarterly monitoring and response program for drinking water quality exceedances.

  The bacteriological follow up procedure was completed in the fall of 2000; a follow up review of these procedures was conducted in late 2002/early 2003. Revisions to the bacteriological follow-up protocol for facilities regulated strictly by Saskatchewan Environment were finalized in March 2002. The resulting protocol document was posted to SE's web site and copies were provided to each regulated waterworks. Development of a quarterly monitoring and response program was completed in the third quarter of the fiscal year and is now being implemented.

- 239 out of 541 (44 per cent) of works submitted bacteriological samples that were free of contamination from April 1, 2002 to March 31, 2003. The number of systems dropped from 544 to 541 when some very small municipalities made physical changes to their systems that resulted in those municipalities no longer subject to departmental regulations. The number of systems meeting bacteriological quality objectives has remained stable in spite of improvements in compliance with chlorine residual and turbidity requirements. The entire reason for this is not clear, although a partial explanation may be that turbidity is not an ideal measure of drinking water safety.

- 385 out of 541 (71 per cent) of regulated waterworks maintained free and total chlorine residuals that met regulatory requirements 90 per cent of the time. This significant improvement may be a reflection of the increased attention to drinking water safety since the Walkerton and North Battleford disease outbreaks as well as the department's increased regulatory presence.

- During 2002-03, there were 150 systems treating surface or mixed water sources. The number of systems dropped from 152 to 150 when two municipalities made physical changes to their systems which resulted that they were no longer considered surface water systems. 38 out of 150 (25.3 per cent) met the turbidity requirement from April 1, 2002 to March 31, 2003. 113 out of 150 (75.3 per cent) of facilities submitted data that were less than 1 Nephelometric Turbidity Unit (NTU) during the same time frame, indicating that many of the non-compliant systems were in compliance for at least a portion of the fiscal year.

- Approximately 815,600 people are served by municipal drinking water systems regulated by Saskatchewan Environment. This fiscal year, 812,068 people (99.56 per cent) received municipal drinking water that met the provincial minimum treatment requirements.

- At the end of the 2002-03 fiscal year there were 28 municipal waterworks regulated by Saskatchewan Environment that did not meet minimum treatment requirements. In addition, two large private waterworks regulated by the department did not meet minimum requirements. During the fiscal year treatment inadequacies were resolved at Benson, Liberty, Mazenod, Rama, Penzance and Zelma, however increased inspection activities identified other communities that did not meet minimum treatment requirements. Saskatchewan Environment continues to work with communities to help in resolving water treatment problems. Canada-Saskatchewan Infrastructure Program (CSIP) grants offer an option to communities that would not otherwise be able to readily improve water treatment facilities. A compliance and enforcement protocol has been implemented to help bring resolution to water treatment inadequacies.

- 500 out of 528 (94.7%) Saskatchewan municipal water treatment facilities met minimum treatment standards.

The department's water quality database contains more than 510,000 sample results, more than 3.6 million measurements and 9,400 stations.

- Approved 27 waterworks or sewage works construction projects in the province over the October 1, 2002 to March 31, 2003. The projects represent an investment of $7 million by the project proponents.

- 426 certified water and wastewater operators as of March 31, 2003.

- Developed a series of standards and guidelines aimed at improving drinking water and wastewater quality. Guidelines, fact sheets and related material developed this year included:
    - Bacteriological Follow-up Protocol for Waterworks Regulated by Saskatchewan Environment, EPB 205
    - A Guide to Waterworks Design, EPB 201
    - Municipal Drinking Water Quality Guidelines, EPB 202
    - Guidelines for Sewage Works Design, EPB 203
    - A Guide to Aquatic Nuisances and Their Control, EPB 47
    - Industrial Works Construction Application Standards, EPB 204
    - Saskatchewan Water and Wastewater Works Operator Certification Standards, 2002, EPB 139/02/2M
    - Saskatchewan's Drinking Water Quality Standards and Objectives EPB 207 (poster)
    - Trihalomethanes EPB 211 (fact sheet)
    - Microbiological Quality: Understanding Drinking Water Quality and Management EPB 197 (fact sheet)
    - Chlorine and Water Disinfection EPB 210 (fact sheet)
    - Cryptosporidium and Giardia lamblia EPB 221 (fact sheet)
    - Water and Wastewater Operator Program Guide, EPB 144
    - Available Training and Reading for Water and Wastewater Operators, EPB 149
    - Introduction to Surface Water Treatment EPB 224 (fact sheet)
    - Introduction to Iron and Manganese Removal EPB 223 (fact sheet)
    - Example waterworks logs and record sheets
- SE staff also drafted the following standards, guidelines and fact sheets for addition to the Drinking Water Information Binder early in the following fiscal year.
    - Waterworks Assessment Standards EPB 233
    - Emergency Response Planning Template and Guidelines EPB 240 and EPB 241
    - Quality Assurance/Quality Control Template and Guidelines EP 242 and EPB 243
    - Hygienic Water Use EPB 232 (fact sheet)
    - Consumer Notification Guidelines and Templates EPB 236

- Operator Information Binder – The above noted guidelines, fact sheets and drinking water related information was were printed and distributed to waterworks permittees through the development of a comprehensive drinking water information binder. The operator information binder is one of the primary tools that SE uses to communicate requirements and

expectations for water management with the owners and operators of regulated waterworks in the province.

- Through activities of the CCME Water Quality Guidelines Task Group (WQGTG) work was continued and completed on several guidelines for protection of aquatic life, irrigation and livestock watering.

- CCME's Water Coordination Committee - This committee continues to provide forum for information sharing and integration on water quantity and quality issues. Sponsored workshops on water related issues including workshops on reuse and recycling of wastewater, water quality monitoring and operator certification. This committee also influenced water related research priorities in Canada. Partnered with CEOH to oversee a joint working subgroup in the development of a national guidance for safe drinking water from source to tap.

- Committee on Environment and Occupational Health (CEOH)/Committee on Drinking Water - Continued to revise and develop guidelines for drinking water quality to protect public health. Completed microcystin LR guidelines, complete consultation on protozoa guideline, revised bacteriological quality guidelines, and drafted virological quality guideline. Completed guidelines for the issuance of boil water advisory/order. Continued to work jointly with CCME's Water Coordination Committee on the development of a national guidance for safe drinking water from source to tap. More resources through an increase in federal funding have been allocated to these committees.

- Drinking Water Website - SE has been a major contributor to the SWIM (SASKH20.CA) web site.

- SE has performed or contributed toward the analysis, gaps, design and implementation of the Saskatchewan Environment – Environmental Management System (SEEMS) for Drinking Water.

2.2.2 Good Quality Surface and Ground Water

Surface and ground (aquifer) water are used for recreational, agricultural, and fish and wildlife uses, as well as for municipal drinking water. It is important that the source water be free of dangerous chemical or biological contaminants that may make it untreatable and unfit for human consumption.

Key Actions

- Develop a Saskatchewan Water Quality Index (SWQI) to evaluate the quality of surface water for multiple uses.

A water quality index for aquatic life and water contact recreation has been developed and is being applied on selected water bodies in three watersheds: the South Saskatchewan river, North Saskatchewan river and the Qu'Appelle river.

The original intent was to apply the SWQI to the seven major provincial watersheds, however we were only able to complete three during 2002-03. Data gaps between 1995 and 2002 precluded application of the SWQI to the remaining watersheds. Given that the department has re-implemented sampling at the primary stations, we should be able to carry out a more complete analysis by the end of 2003-04.

The quality of our ambient water resources is an important factor in assessing the viability of the water for any number of uses. One emerging tool that will be of increasing value over the years is the Saskatchewan Water Quality Index, a modification of the Canadian Water Quality Index. The Index was developed to help summarize complex water quality data and to facilitate communication with technical managers as well as the general public. The Index incorporates three elements: *scope* – the number of variables not meeting Saskatchewan's Surface Water Quality Objectives (SWQO); *frequency* – the number of times these objectives are not met; and *amplitude* – the amount by which the objectives are not met. The Index produces a number between 0 (worst water quality) and 100 (best water quality). In this way, the Index can be used to assess water quality relative to its desirable state (as defined by the SWQO) and to provide insight into the degree to which water quality is affected by human activity.

The Index has the flexibility to allow different users to select parameters, sites and time periods that are meaningful to their issues. Saskatchewan's application of the Index allows users to evaluate water quality parameters against the SWQO in four categories or uses: *Protection of Aquatic Life* – this category uses a wide range of parameters necessary to support fish, insect, and plant life; *Irrigation* – parameters that can adversely affect irrigated crops; *Livestock Watering* – includes parameters that can affect livestock growth and well being; and *Recreation* – this category evaluates the bacterial and aesthetic quality parameters of the water.

Once the Index value has been determined for a particular watershed use, water quality is ranked by relating it to one of the following categories:

- *Excellent*: (Index value 95-100) – water quality is protected with a virtual absence of threat or impairment; conditions are very close to natural or pristine levels;

- *Good*: (Index value 80-94) – water quality is protected with only a minor degree of threat or impairment; conditions rarely depart from natural or desirable levels;

- *Fair*: (Index value 65-79) – water quality is usually protected but occasionally threatened or impaired: conditions sometimes depart from natural or desirable levels;

- *Marginal*: (Index value 45-64) – water quality is frequently threatened or impaired; conditions often depart from natural or desirable levels; and

- *Poor*: (Index value 0-44) – water quality is almost always threatened or impaired; conditions usually depart from natural or desirable levels.

We have applied the SWQI to three of the major watersheds in Saskatchewan: South Saskatchewan River, North Saskatchewan River and Qu'Appelle River. The SWQI was applied for two specific uses and their associated objectives: *Aquatic Life and Wildlife Protection* and *Contact Recreational Uses*.

Objectives for protecting the quality of the habitat of aquatic organisms including fish, aquatic fauna and flora, are more stringent than those applicable to other water uses. These objectives, used in the SWQI, (Table 1) will afford protection of fish and other aquatic life at all stages of development. Because of the relatively

stringent values for the various constituents, these objectives will also likely afford protection to wildlife that rely upon surface water for drinking water and their source of food supply.

Table 1: Objectives of the SWQI for Aquatic Life

Water Quality Parameter:	**Objective:**
Chloride - Dissolved	100 mg/L
Arsenic - Total	0.5 mg/L
Chromium - Total	0.02 mg/L
Nitrogen - Total Ammonia	Based on pH and Temperature
Mercury	0.0001 mg/L
Sodium - Dissolved	100 mg/L
PH	6.5 – 8.5
Oxygen - Dissolved	5 mg/L
2' 4-D	0.004 ug/L
MCPA	0.025 ug/L

Contact recreational uses of water concerns those activities that involve direct contact between the human body and surface water for prolonged periods. It can also include activities where ingestion/inhalation of surface water is likely to occur. Such activities include swimming, water skiing, bathing and wading. These objectives, used in the SWQI, (Table 2), will afford reasonable protection of water users from waterborne disease and maintain desirable aesthetic conditions in the water body.

Table 2: Objectives of the SWQI for Recreational Use

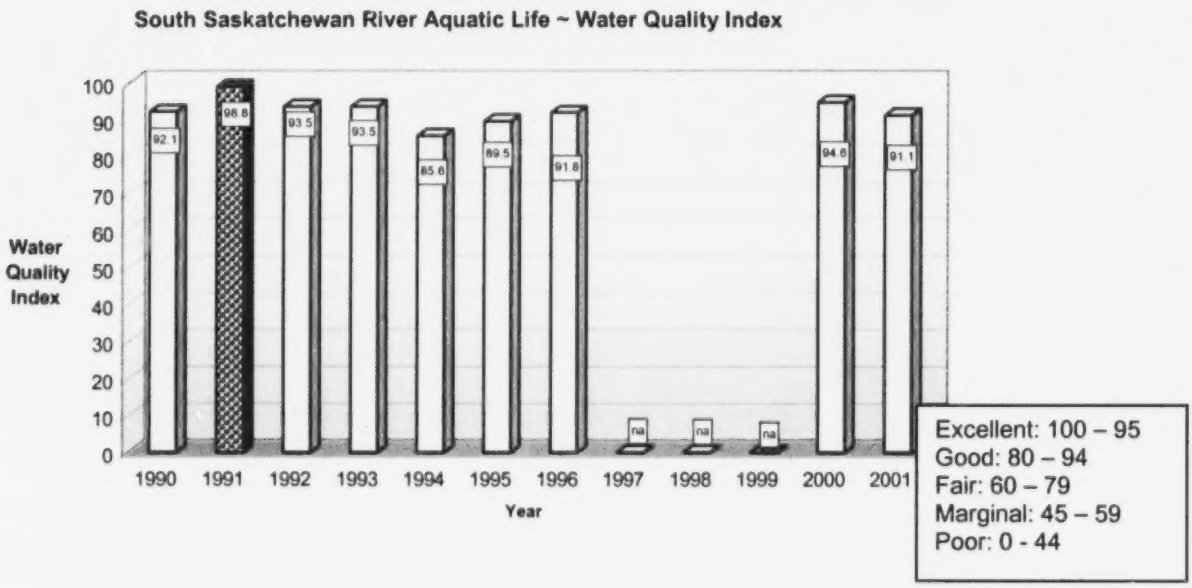
Water Quality Parameter:	**Objective:**
Fecal Coliforms	< 200 per 100 mL
Clarity	Water clear to depth of 1.2m

The South Saskatchewan River is a broad, swift-flowing river that originates in the Rocky Mountains and flows eastward into Saskatchewan, entering the province near the Town of Leader. It then flows in a north-easterly direction and joins the North Saskatchewan River just east of Prince Albert. Lake Diefenbaker, created by the completion of Gardiner Dam and the Qu'Appelle Valley Dam in 1967, is the major storage reservoir on the South Saskatchewan River. Major water uses in this system include irrigation, power generation, municipal and industrial water supply, recreation, flood control, sport and commercial fishing and wildlife habitat. Lake Diefenbaker and the

South Saskatchewan River form the largest supply of good quality water in southern Saskatchewan.

Figure 2.1(a) shows the mean annual SWQI in the 'Protection of Aquatic Life Category' for the entire South Saskatchewan River for the years 1990 to 2000. The SWQI numerical ratings for the river ranged from 85.6 to 98.8, which correlate to 'Good' to 'Excellent' conditions for the protection of fish and other aquatic life. There was very little variation in the ratings over the study period. In this case, the SWQI could not be applied to the years 1997 to 1999 because insufficient water quality data were available.

Figure 2.1(a):



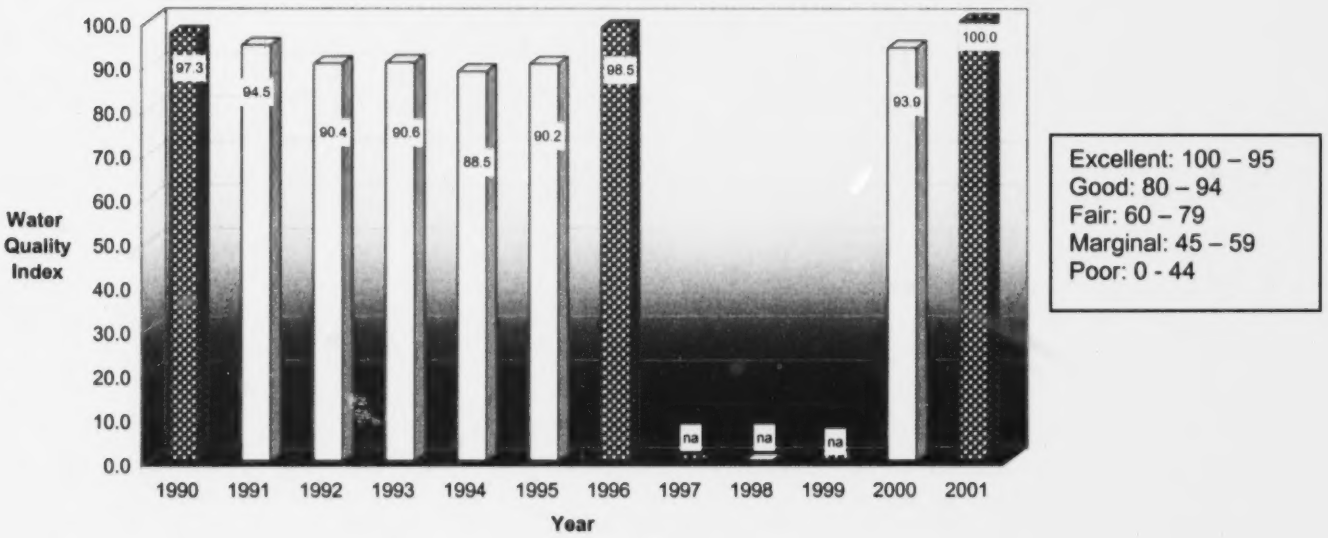
The North Saskatchewan River originates from snow and glacial melt waters in the eastern Rocky Mountains of Alberta, flows through the City of Edmonton and enters Saskatchewan near Lloydminster. From there it flows in an easterly direction past the cities of North Battleford and Prince Albert and then joins the South Saskatchewan River. Some of the uses of the river include municipal and industrial water supply, recreation, irrigation, livestock watering, and fish and wildlife. The river also receives treated wastewater from municipal and industrial sources.

Figure 2.2(a) shows the mean SWQI in the 'Protection of Aquatic Life Category' for the entire North Saskatchewan River for the period 1990 to 2001. The SWQI numerical ratings ranged from 88.5 to 100.0, which correlate to 'Good' to 'Excellent' conditions for the protection of fish and other

aquatic life in this waterbody. Again, the SWQI could not be applied to the years 1997 to 1999 due to insufficient water quality data.

Figure 2.2(a):

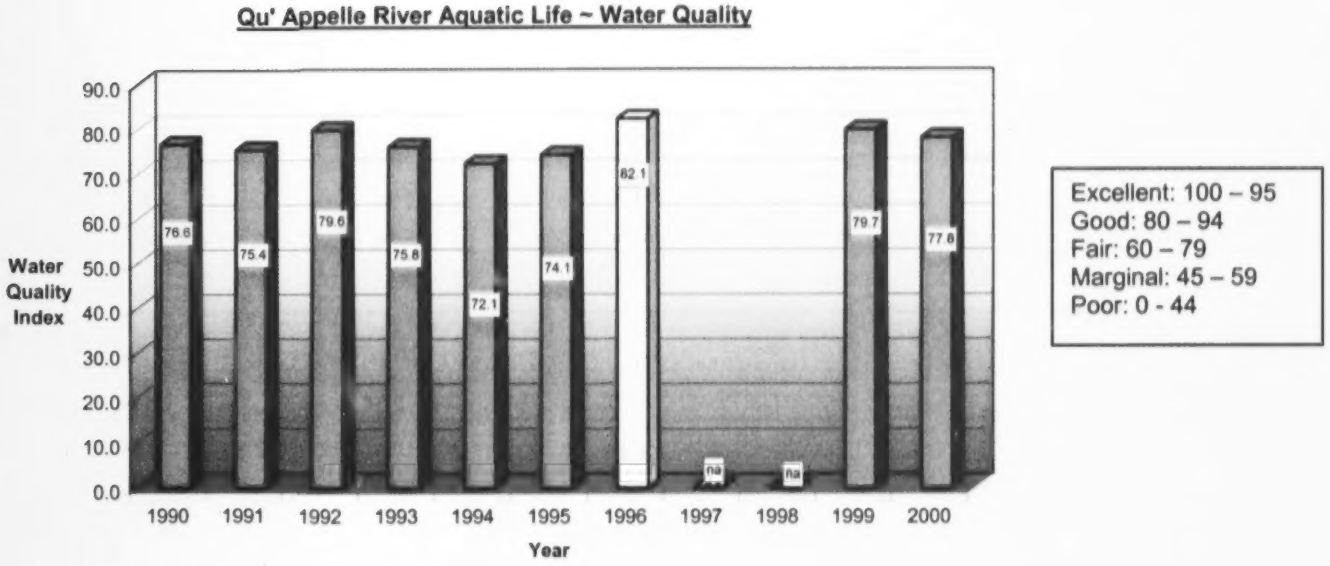
North Saskatchewan River Aquatic Life ~ Water Quality Index



The Qu'Appelle River originates at the Qu'Appelle Valley Dam on Lake Diefenbaker and flows eastward to join the Assiniboine River near St.Lazare, Manitoba. Like most prairie rivers in semi-arid climates, the Qu'Appelle under natural conditions is an intermittent system with runoff from snowmelt as its major source of flow. Major water quality concerns in the Qu'Appelle stem from excessive growths of algae and aquatic plants in the lakes and input of nutrients from man-made sources. Poor water quality has occasionally limited recreational use of the Qu'Appelle lakes during summer.

Figure 2.3(a) shows the mean annual SWQI ratings (Protection of Aquatic Life) for the Qu'Appelle River over the period 1990 to 2000. The years 1997 and 1998 were omitted due to insufficient data. Overall, the ratings ranged from 72.1 to 82.1, corresponding to a description of 'Fair' to 'Good' condition. In this case, there are some factors that may occasionally impair the water for use by aquatic life. These likely relate to inputs of treated wastewater along the system, or periodic declines in dissolved oxygen levels due to the decomposition of aquatic plants.

Figure 2.3(a):



- Expand monitoring of surface and groundwater resources in the province.

  All the provincial surface water sampling sites (245) were reviewed to determine the best sites to provide quality information. Surface and ground water monitoring programs have been evaluated and reconciled. This resulted in an expansion of the recreational lake monitoring program, and a continuation of monitoring of major river systems in the province. In the last few years there have been a number of changes to emphasize the need for an active provincial surface water quality monitoring program. The EcoRegions have put together their Ecosystem Operating Plans outlining both their needs and their responsibilities related to surface water quality monitoring. Many of the watersheds within Saskatchewan cross through multiple EcoRegions, suggesting the need for a coordinated provincial approach to monitoring. Walkerton and North Battleford have highlighted the tie-in between surface water quality monitoring and public health. The department has conducted a statistical analysis of past trend data a developed a new list of sites and parameters that removes redundancies and focuses on collecting relevant information.

  This analysis has resulted in a list 19 sites being chosen to comprise the "new" primary sites. These sites were chosen based on a number of criteria: they had to be sites that, based on analysis of past data, are statistically relevant and meaningful (i.e., that showed trends or are needed to show trends); they had to be easily accessible on a year-round

basis for sampling; they had to be useful for application of the SWQI; they needed to monitor the major water basins within Saskatchewan; and they needed to be tied in with the EcoRegion's Ecological Operating Plans as well as meet our provincial and inter-provincial obligations. In 2003 the department began sampling at 18 new primary sites. Sampling will occur no less than four times per year and hopefully six to eight times per year, enabling SE to run trend analysis programs as well as apply the SWQI. This addresses the Water Management Framework Action Item #1 (Develop indicators and monitor the health of drinking water sources and aquatic ecosystems). The data collected will help guide future water resource management and also identify existing significant problems as well as future threats.

- Ensure monitoring of effluent quality from SE regulated point sources.

  Saskatchewan Environment issues permits for point source emissions from industries and municipalities. This entails monitoring and reporting of effluent quality results to the department. Municipalities are provided free analysis of municipal wastewater effluent for a range of pollution control parameters. Saskatchewan Environment reviews analytical data on at least an annual basis to track and manage wastewaters generated and released in the province. During the 2002-03 fiscal year the department performed compliance inspections at wastewater treatment works and initiated work to assess the risks and potential impact of wastewater discharges. These assessments will continue into the 2003-04 fiscal year. Through the promulgation of the new *Water Regulations, 2002*, minimum treatment requirements have now been made as legal requirements where they previously existed only as guidelines. Considerable effort was expended to begin the process of making information on wastewater quality available on Saskatchewan Environment's new internet accessible Environmental Management System. The department expects to have this system fully implemented for access to wastewater quality data during 2003-04. Saskatchewan Environment continued to work with communities and industries to better manage wastewater effluents and thereby provide better environmental protection.

  Data is obtained from various laboratories that report results directly to the department. Samples may be collected as a result of department permit requirements or by department staff.

- Continue active participation on Saskatchewan's behalf in the federal-provincial committee on Municipal Waste Water Effluents (MWWE) under CEPA-NAC.

- Site Specific Water Quality Guidelines and PPWB Water Quality Objectives: Alberta side objectives are now in place and being used.

- Research into the production of algal toxins in lakes and rivers by blue-green algae continued with efforts to derive a correlation between water chemistry and algae blooms.

- Saskatchewan is in the midst of a major expansion in the hog industry, and there are concerns about negative environmental impacts, including the possible deterioration of surface water quality. SE and Saskatchewan Agriculture, Food and Rural Revitalization have conducted monitoring program in the vicinity of several large hog operations to obtain baseline water quality data during spring runoff.

- Fact sheets were prepared on techniques for monitoring of surface water, groundwater and sediments for use by the Eco-Regions to assist in establishment of ecosystem monitoring programs.

- Satellite imagery data was used to identify shallow lakes in the West Boreal and Shield Eco-Regions that are prone to damage by acid rain. The department identified 10 lakes to be considered for monitoring and this list was forwarded to the Tar Sands Working Group for approval. Also, monitoring has been ongoing in the West Boreal and Shield EcoRegions for acid deposition in natural lakes.

- A number of water quality assessment reports were completed as part of Saskatchewan's contribution to the Prairie Province's Water Board activities.

- Surface and ground water monitoring programs have been evaluated and reconciled; this resulted in an expansion of the recreational lake monitoring program, and a continuation of monitoring of major river systems in the province; this analysis also resulted in a list of "new" primary monitoring sites.

2.3 Clean Air

Clean air is essential for good health. Many factors affecting air quality are outside SE's control, such as wind, smoke from forest fires or industrial emissions from other jurisdictions. SE will continue to monitor and work with other parties and jurisdictions where necessary to ensure clean air.

Photo: Sam Ferris

Key Actions

- Review compliance and implement compliance plans and schedules for regulated air emission systems.

  Saskatchewan Environment conducted a risk assessment on all air stressors to the environment. Particulate matter, mercury, and acid deposition were determined to be of the greatest risk to ecosystems within Saskatchewan. The department concentrated its efforts on the national front on these issues via the Canadian Council of Ministers of Environment (CCME) and its Canada-wide standards activities. In 1997 all industries with a Permit to Operate pursuant to *The Clean Air Act* were automatically given a five-year extension. The intent was to provide Saskatchewan Environment staff the opportunity to consider future licensing needs for industries based on risk management principles. This "blanket" extension expired April 30, 2003. Grassland EcoRegion and Ecological Monitoring Section have developed a risk management approach to determine which high risk industries should continue to be permitted. The approach is as follows: 1) Screening out those industries that do not present a hazard (i.e., based on types and/or quantities of specific contaminants being emitted). 2) Screening out those industries that are operating in areas where there are few if any receptors. 3) Screening out those industries where there are current codes of practice, guidelines or regulatory systems in place. 4) The remaining industries are considered medium to high risk and should continue to be permitted.

  This approach has resulted in a decrease of at least 60% of the number of permits issued provincially. These re-evaluated permits will be issued starting in the early summer of 2003. Staff are now able to focus their resources on the industries of concern.

- The Air Quality Index was modified in to an Air Pollution Index, which more accurately reflects risk to human health.

- Develop and implement a bilateral acid rain management framework between Saskatchewan and Alberta.

  In 2002 an MOU was signed with Alberta to address the acid deposition issue. Since then, the two provinces have developed similar acidifying emissions management frameworks. In the implementation of their frameworks, the provinces are cooperating in a variety of ways consistent with the best use of resources available for the environment and the achievement of high quality environmental results. They include:

  1) Sharing technical training and support functions between the two provinces relating to the modeling and monitoring of acid-forming substances, deposition and impacts.
  2) Coordinating the collection of air, aquatic and terrestrial monitoring data used to evaluate acid-forming substances, deposition and impacts, by developing and applying, where practical, common monitoring and data management methods and procedures.
  3) Collaborating in defining emission and deposition trends as well as developing modeling scenarios to predict trends and to identify the areas most sensitive to, and most affected by, long-range transport and deposition of acidic materials.
  4) Sharing information and approaches for the determination of critical, target and monitoring loads for sensitive areas subject to deposition from long-range aerial transport sources.
  5) Sharing perspectives and information on management options related to levels of deposition and to critical and target loads for sensitive areas.

  Initial modeling work indicates that lakes in the North-west part of Saskatchewan are susceptible to acid deposition from development of the tar sands area in Alberta. Similarly, the Great Sandhills ecosystem is at risk from acidifying emissions from the Calgary-Edmonton corridor. Saskatchewan Environment has an ongoing lake monitoring program (30 lakes) to monitor changes in pH and Acid Neutralization Capacity for northern watersheds. To date, there is no monitoring program for the Great Sandhills.

- Continue to cooperate with neighbouring governments to monitor air quality in the southeast part of the province.

  Saskatchewan Environment has been working with Environment Canada, as well as other provinces and territories in developing an MOU to

formalize rules and responsibilities relating to the management of air pollution monitoring networks located within the province. The National Air Pollution Surveillance Program (NAPS) changed considerably in 2001/2002 as a result of increased federal funding for the program. This funding translated into about $ 77,000 annually, a considerable addition to the $22,000 base annual funding. This money is designated for the purchase of monitors and samplers to be installed in Swift Current and Prince Albert as well as to replace aging infrastructure in Regina and Saskatoon. It also allows for an increase in the number of measurements in each city. This funding allows the NAPS Program to begin to address the challenges of the upcoming decade in this province, namely meeting the monitoring requirements for Canada Wide Standards for Particulate Matter (PM) and Ozone and the Ozone Annex to the Canada-US Air Quality Agreement.

Saskatchewan Environment is working in partnership with Environment Canada, SaskPower and North Dakota to monitor sulphur dioxide, nitrogen dioxide and particulate matter at Boundary Dam, the City of Estevan, Rafferty Dam and two sites in North Dakota. To date there have been no exceedances of provincial ambient air quality objectives.

- During the 2002-03 fiscal year there were no exceedances of the Saskatchewan ambient air quality standards for Regina and Saskatoon. The Air Quality Index for both cities showed a "good" to "excellent" rating more than 99 per cent of the time. A five-year trend analysis using the Air Pollution Index follows.

  To date there have been no exceedances of provincial ambient air quality objectives for sulphur dioxide, nitrogen dioxide and particulate matter.

- The provincial air contaminant emission inventory for the year 2000 was compiled and implemented into the national database.

- Annual Air Pollution Index - Regina and Saskatoon

  The Federal-Provincial Committee on Air Pollution published a guideline for an annual air quality index (Index on the Quality of Urban Air – IQUA) in August 1980 (Guidelines for an Annual Air Quality Index, a Report by the Federal-Provincial Committee on Air Pollution, August 1980, Cat. No. EN41-22/1980, ISBNO-662-50863-7. The index uses air quality objectives or standards as the numerical basis for the index. It transforms the measured

concentrations of certain air pollutants into a single number and descriptive term that represents both the measured and the publicly perceived quality of the ambient air for a given time period and location. It is based upon the measured outdoor concentrations of the major pollutants (suspended particulate matter, ground-level ozone, carbon monoxide, sulphur dioxide and nitrogen dioxide). The concentration of each pollutant is converted into a sub-index IQUA number, and the highest number is the IQUA for that station.

Although a federal-provincial committee developed the IQUA, Saskatchewan Environment has customized the index to meet our specific needs. Rather than keeping the IQUA strictly as an air quality measure, SE has modified it to be an overall pollution index tied in with the likelihood of experiencing harmful health effects. In this way, our Air Pollution Index (API) provides information to the public enabling them to take appropriate actions to protect themselves from the adverse effects of air pollution.

The calculations for the IQUA and the API are similar except that the scales have been modified and the rating for the API is referenced to the current state of evidence on the adverse health effects of air pollution. The overall API is now reported on a scale of 0 to 100, with 100 being the best air quality. The lower the number, the more polluted the air, and the higher the risk to human health. The descriptive terms for the specific numerical values are listed in the following table.

Descriptor	Numerical Values	Effects
Excellent	100 - 85	No known risk to human health
Good	84 – 70	Negligible risk to human health
Fair	69 - 55	Potentially unhealthy for some sensitive groups of individuals (children, seniors, those with heart and lung disease are at greater risk)
Marginal	54 - 35	Air pollution is associated with harmful effects ranging from minor irritations of the throat, to worsening of asthma and other lung conditions.
Poor	34 - 0	Possibility of severe conditions including increased mortality

The data used for the API is collected from two continuous monitoring stations – one in Regina and one in Saskatoon. Over the next few years monitoring stations in Swift Current and LaRonge will be brought online.

Air pollution levels are influenced by a number of factors including natural sources such as dust or smoke, weather patterns and the intensity of industrial development and human activity.

Photo: Blaine Ganong

Air pollution levels over the previous six years in Regina and Saskatoon were fairly consistent and have fallen within the *Good* range with the exception of Saskatoon for 1999, which was considered *Fair* by a marginal amount.

Certain assumptions and value judgments are inherent in the index, perhaps the most important being the use of 98th percentile concentration. This is recommended by the World Health Organization. It means, for example, that an annual index number of 68 (Fair) as reported for Saskatoon during 1999 would mean the pollution levels have been better than or equal to 68 for 98 per cent of the time during the year. It does not mean that the average air quality was 68. The remaining (or worst) 2 per cent usually reflects anomalies such as weather, pollution, possible errors in the data, etc. With this in mind, caution is advised in using the index to compare the two major cities. These index results are better utilized in comparing long-term trends at each individual station.

On an annual cycle, poorer air quality usually occurs during the summer and fall seasons. Under windy and hot conditions forest fire smoke (and in the fall, stubble burning smoke) and particulates are typically transported over large areas of the province contributing to a decline in air quality and hence an increase in overall risk to human health. There have been occasional days in both Regina and Saskatoon during the summer and fall in which particulate matter, in the 2.5 micron range, would present a potential health risk to those individuals with lung ailments.

In Saskatchewan, particulate matter tends to be the driver of the API. Occurrences of elevated levels of ground level ozone or nitrogen dioxide are rare and occurrences of elevated levels of carbon monoxide and sulfur dioxide are very rare.

Tables 1 and 2 summarize the annual sub-indices and overall indices obtained during the past five years in Regina and Saskatoon. This overall index is graphically presented in Figures 1 and 2.

Table 1 - ANNUAL AIR QUALITY SUB-INDICES
REGINA 1998 – 2002

Pollutant	1998	1999	2000	2001	2002
SPM	50	64	56	46	43
O3 (1hr)	80	76	88	87	85
CO (8 hr)	90	92	92	92	
CO (1 hr)	96	96	97	97	98
SO_2 (1 hr)	99	99	99	100	99
SO_2 (24 hr)	99	99	99	99	97
NO_2 (24 hr)	85	87	89	88	88
NO_2 (1 hr)	91	92	93	93	93

OVERALL INDEX
1998 – 72 (good) 2000 – 78 (good)
1999 – 76 (good) 2001 – 74 (good)
2002 – 72 (good)

Table 2- ANNUAL AIR QUALITY SUB-INDICIES
SASKATOON 1998 – 2002

Pollutant	1998	1999	2000	2001	2002
SPM	47	39	59	71	40
O3 (1hr)	82	79	83	79	77
CO (8 hr)	93	94	95	94	
CO (1 hr)	97	97	98	98	98
SO_2 (1 hr)	100	100	100	100	100
SO_2 (24 hr)	99	99	99	99	99
NO_2 (24 hr)	87	86	88	90	93
NO_2 (1 hr)	91	91	92	94	90

OVERALL INDEX
1998 – 72 (good) 2000 – 77 (good)
1999 – 68 (fair) 2001 – 80 (good)
2002 – 69 (fair)

Figure 1

Regina Air Pollution Index

100 - 85 ~Excellent
84 - 70 ~ Good
69 - 55 ~ Fair
54 - 35 ~ Marginal
34 - 0 ~ Poor

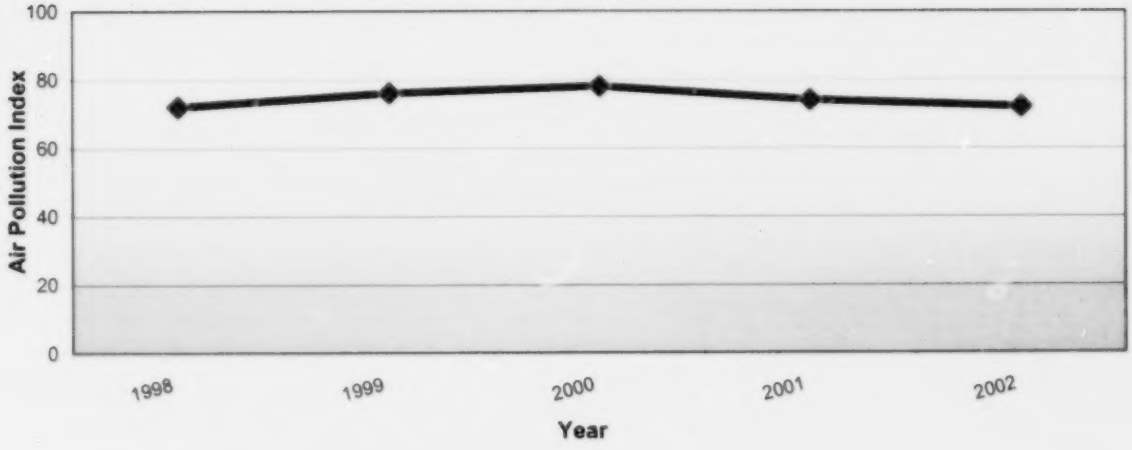
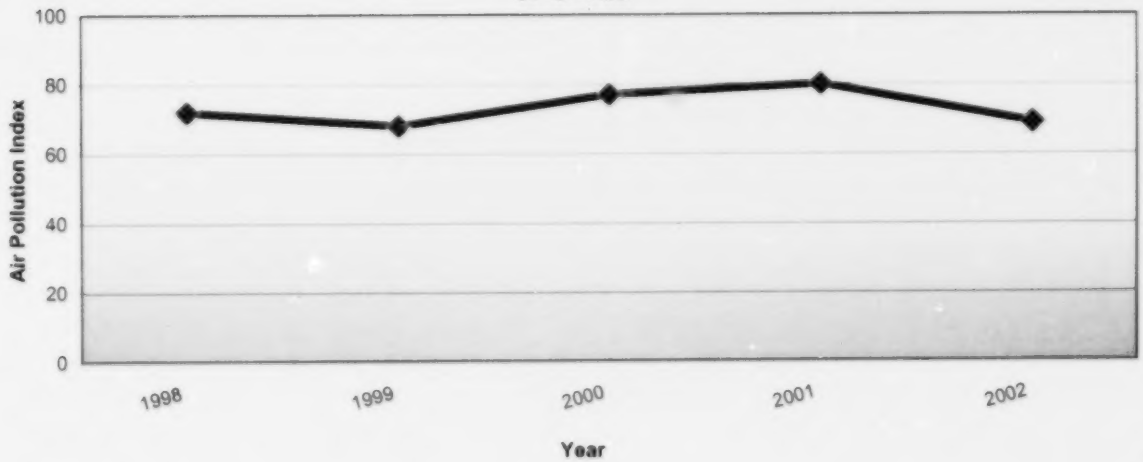


Figure 2

Saskatoon Air Pollution Index

100 - 85 ~ Excellent
84 - 70 ~ Good
69 - 55 ~ Fair
54 - 35 ~ Marginal
34 - 0 ~ Poor



2.4 Clean Land

Clean land is also very important for health. Chemically contaminated land may contribute to pollutants entering water and air. Harmful contaminants in the soils may also enter the food chain and thus affect the health of many life forms.

Key Actions

- Ensure compliance with regulated stewardship programs (beverage containers, scrap tires and used oil).

  Saskatchewan Environment participated in the Saskatchewan Waste Reduction Council Waste Minimization Forum. The Minister declared a week in October 2002 as Waste Reduction Week in Saskatchewan. Saskatchewan Environment continues to regulate specific third party waste minimization programs. Past compliance efforts and third party organization education programs have resulted in minimal non-compliance with regulatory requirements.

Saskatchewan's product stewardship programs have recycled two billion beverage containers, ~3.0 million tires, 80 million litres of used oil, 8 million oil filters, 700,000 kg of oil containers and 20 million pesticide containers.

- Scrap Tire Management Program
  - 72 per cent of scrap tires collected and recycled
  - A number of Recycling Businesses expanded their operations to handle more of the provinces scrap tires.
  - Since phase two of the program, removal of stock piled scrap tires from community landfills; over 80 communities have had their stock piles of scrap tires removed at no cost to the community.
  - The scrap tire recycling rate is slightly lower than in previous years, and 3 per cent below the 2002-03 target. Although typical numbers of scrap tires were collected, problems at two processor facilities, including a fire that destroyed one facility, resulted in fewer tires being processed and a reduction in the recycling rate. An additional shift is being added and other adjustments are being made at one processing facility to increase processing to try and catch up in early 2003-04.

- Used Oil Program
  - 77 per cent of used oil collected and recycled
  - La Ronge received an Eco-centre
- Beverage Container Collection and Recycling Program
  - 89 per cent of beverage containers collected and recycled
  - 225,212,845 beverage containers have collected and recycled through the Beverage Container Collection and Recycling Program for the period from April 1, 2002 to March 31, 2003.
  - On August 28, 2002, SARCAN Recycling announced that from June 1, 1988 to March 31, 2002 (inclusive), 2,178,193,920 beverage containers had been collected and recycled through the province's beverage container collection and recycling system.
- Milk Container Recycling Program
  - For the period of April 1, 2002 to December 31, 2002 (inclusive), 3,594,076 (approx.) high density polyethylene (HDPE) plastic milk containers were collected and recycled.
  - 1,944,263 (approx.) polycoated paper, gable top milk containers were collected and recycled.
- Pesticide Container Collection
  - 64 per cent of pesticide containers collected and recycled
  - Recycling rates for pesticide containers remain at traditional levels, although recycling rates for this commodity exceeded their 2002-03 targets.

- Clean up of known high risk contaminated sites in accordance with the Centenary Fund action plan.

  Four sites have been completely remediated to date; these are the Shragge Steel site in Regina, the IPCO Chemicals site in Saskatoon, the NWR Salvage site near Saskatoon., and Northern Petroleum Refinery site in Kamsack. Work continues on two other sites where remediation is required. Work at the Woodland Campus site in Prince Albert is approximately 80 per cent complete and cleanup will be completed by March 31, 2004 at the Inland Steel site in Saskatoon.

  Remediation work has also been completed in cleaning up petroleum contamination at the Waite Fisheries site in northern Saskatchewan.

- Continue inventory and risk assessment of contaminated sites, including abandoned mines, and develop clean-up strategies for high-risk contaminated sites.

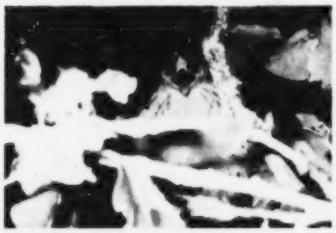


Photo: Kelly Neuert

Inventory reports have been completed for abandoned mines in northern Saskatchewan. The Abandoned Mines Assessment Program will be complete when the final report is received in the fall of 2003.

Clean up strategies are in place for high-risk contaminated sites requiring remediation under the Centenary Fund. All 423 identified orphaned fuel storage tank sites across the province have been assessed. With respect to orphan fuel sales and storage facilities, the Centenary Fund has resulted in the remediation of a total of 70 service station sites. This includes all high risk and a number of moderate risk contaminated areas. The program will continue until funding commitments expire at the end of 2003-04.

- Update and implement a tank compliance strategy for petroleum distribution facilities.

  Saskatchewan Environment has a compliance strategy in place for addressing petroleum distribution facilities. A guidance document entitled "Risk Based Corrective Actions for Petroleum Contaminated Sites" has been developed and distributed to help guide clean up efforts. The department continues to further update and refine these guidelines.

- A review of the Saskatchewan Industry and Resources mining database in 2002, as well as a detailed reassessment of SE's requirements for decommissioning and reclamation plans and funds, was conducted. Based on this assessment, for 2002-03 it was determined that there are 27 of 32 sites (i.e., 85 per cent) which have decommissioning and reclamation plans in place, 3 of 32 sites (i.e., 9 per cent) which have submitted decommissioning and reclamation proposals and 2 of 32 sites (i.e., 6 per cent) that do not have decommissioning and reclamation plans or proposals in place.

  The same assessment was conducted with respect to the status of financial assurance funds. Based on this assessment it was determined that there are 22 of 31 sites (i.e., 71 per cent) which have financial assurance funds in place, 3 of 31 sites (i.e., 10 per cent) which have

submitted financial assurance fund proposals and there are 6 of 31 sites (i.e., 19 per cent) that do not have financial assurance funds.

- Saskatchewan Environment encouraged environmental clean-up and regional waste management by providing a $5.75 million, 4-year program.
    - The environmental clean-up of contaminated sites was designed to assist in cleaning up high-risk properties for which the responsible parties could not be found or where the owner was unable or unwilling to finance the remediation of a site. For the first three years, approximately $2.763 million has been allotted for clean up.
    - The regional waste management portion of the funding is provided on a 50 per cent cost share with the authority to help close landfills, establish transfer stations, purchase waste collection bins and develop recycling depots. So far the provincial government has allocated $1.675 million for the first 3 years to six authorities across the province. A recent, informal survey indicated that a total of 88 landfills in the province were closed mostly as a result of the establishment of regional waste management authorities.

      Six regional waste management systems have been funded to close and remediate landfills, create new, regional landfills and waste collection systems and develop waste minimization and recycling programs in a regional setting. Red Coat Waste Resource Authority, West Yellowhead Waste Resource Authority, North Central Saskatchewan Waste Management Corporation, Saskatoon Regional Waste Management Association Inc., Parkland Regional Waste Management Authority Inc., and Central Regional Landfill Waste Management Authority Inc. have received Centenary Funding since the beginning of the program in 2000. They all received funding in 2002-03 with the exception of the North Central Saskatchewan system. There is one year left in the Centenary Fund program.

Photo: Murray Hilderman

2.5 Other Branch Activities

- Canadian Nuclear Safety Commission -Saskatchewan Administrative Agreement for the Regulation of Health, Safety, and the Environment at Saskatchewan Uranium Mines and Mills - Signed February 13, 2003 by the Ministers of Environment and Labour and the President of the Canadian Nuclear Safety Commission.

- 310 environmental file searches were conducted.

- The CCME Canada-wide Standards for Dioxins and Furans for Iron Sintering and Dioxins and Furans for Electric Arc Furnace Steel Manufacturing were signed in January 2003. The Saskatchewan implementation plans for Benzene - Phase 2, Petroleum Hydrocarbons in Soils, Mercury Containing Lamps, Mercury from Dental Amalgams, and Dioxins and Furans for Waste Incinerators and Coastal Pulp and Paper Boilers Burning Salt Laden Wood can be found on the SE web site.

Presided over the updating, web posting and publication of a number of branch publications. Five new solid waste publications targeted at municipalities and the general public were developed for operation and management of waste disposal grounds. Twenty-five new drinking water related documents were developed or updated and subsequently posted on SE's website.

2.5.1 Legislation

- The new Environmental Management and Protection Act was proclaimed on October 1, 2002. The Act facilitates the implementation of the government's long-term safe drinking water strategy and provides greater clarity on contaminated site management. The new Act amalgamates the content of the former *Ozone-depleting Substances Control Act*.
    - *EMPA, 2002* is structured for easy reference and adopts a number of new approaches to the management and protection of the environment. It clarifies and simplifies the legislation by putting all the administrative components in one part and specific technical legislative requirements in distinct divisions of the statute.

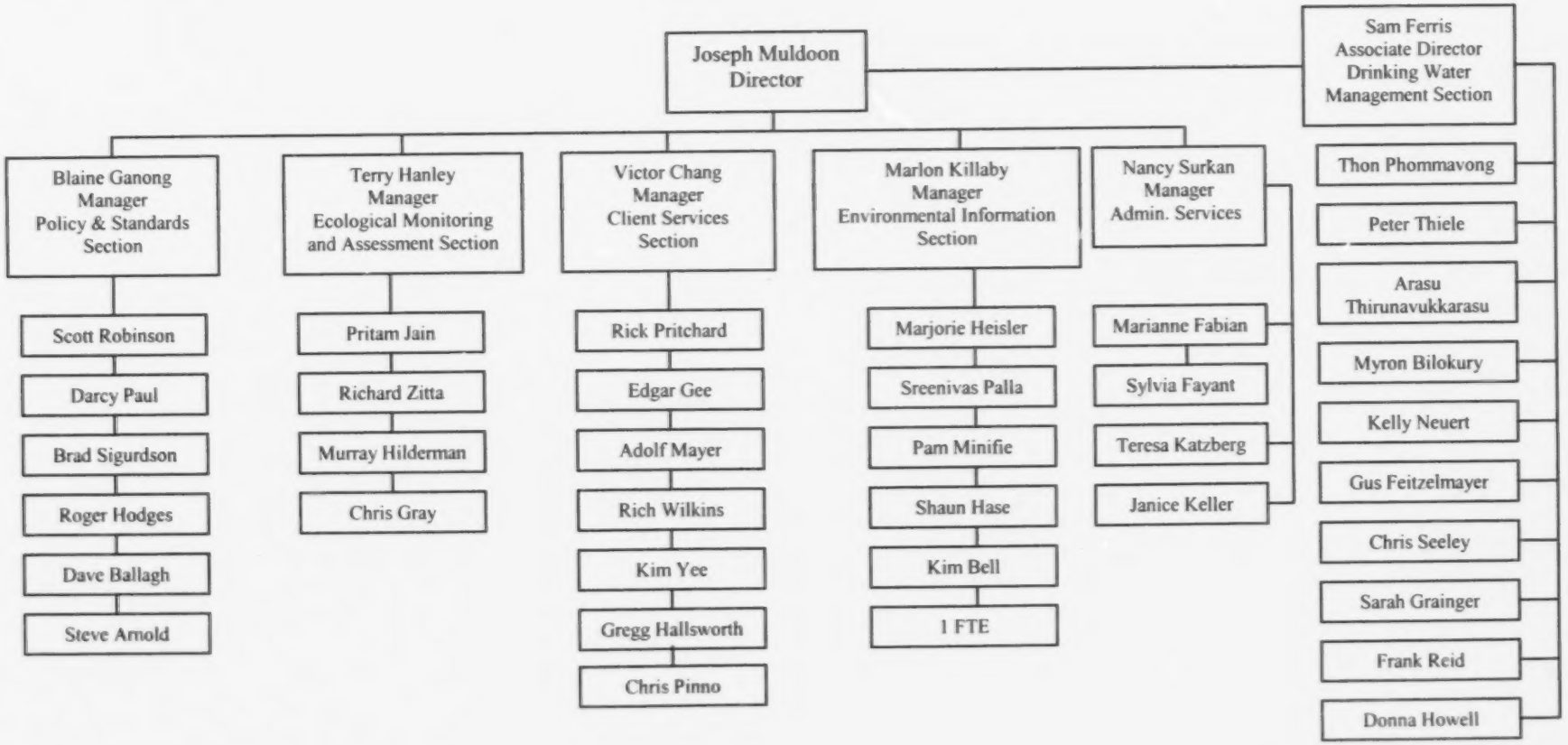
- These amendments make the legislation more concise and consistent with the policies of the government. It also makes access to the Act for future changes much more practical with the new structure. The new coincides with changes to *The Saskatchewan Water Corporation Act* and the new *Saskatchewan Watershed Authority Act* to ensure that the people of the province have sustainable, reliable, safe and clean drinking water.
- Major changes to *EMPA, 2002* include a specific section dealing with contaminated sites and improved enforcement provisions including administrative penalties for water related issues. Powers of environment officers in *EMPA, 2002* are now standardized with those in other departmental legislation.
- *The Ozone-depleting Substances Control Act* has been amended to manage ozone-depleting substances consistent with national commitments and with other provinces.
- Of specific interest will be significant changes to definitions, unauthorized discharges, contaminated sites, environmental protection orders and new inspection and enforcement provisions including administrative penalties.

- *The Water Regulations* came into effect December 5, 2002 as a means to provide safer drinking water for Saskatchewan residents. The regulations require that owners report to their customers on the quality of their water and their compliance with sample submission requirements. Also included in the regulations are improved monitoring, better operator training and stricter operational requirements for water and wastewater treatment plants.

Appendices

Branch Organizational Chart

SASKATCHEWAN ENVIRONMENT AND RESOURCE MANAGEMENT
PROGRAMS DIVISION
ENVIRONMENTAL PROTECTION BRANCH
April 2003



Environmental Protection Programs

Branch program areas include:

- Air quality
- Ambient water quality
- Aquatic nuisance control
- Beverage container recycling
- Climate change
- Contaminated site management
- Cumulative effects monitoring
- Drinking water (predominantly from the municipal sector)
- Environmental file searches
- Ground water quality
- Hazardous substances and waste dangerous goods
- Hydrostatic pipeline testing
- Liquid waste haulers
- Mining (coal, clay, peat, potash, uranium, salt, sodium sulphate, gold and base metals)
- Municipal wastewater and water/wastewater operator certification
- Oil and gas industry
- Oil refining
- Ozone depleting substances
- PCB storage
- Pesticide container management
- Power generation (including hydroelectric)
- Scrap tire recycling
- Solid waste management
- Spill control and response
- Transportation of dangerous goods
- Used oil collection

Committees and Task Groups

EPB works with numerous individuals, organizations and industries at the local, regional, provincial, national and international level. The committees and task groups listed below are involved in environmental and resource management decisions and have a working relationship with the Branch.

- Aboriginal Affairs Network (SE)
- Agricultural Burning Working Group
- Biodiversity Action Plan
- Canadian Council of Ministers of the Environment (CCME)
  - Ad Hoc Toxics Group
  - Cleaner Vehicles and Fuels Task Group
  - Canada-wide Standards (CWS) - Sub-agreement
  - CWS – Particulate Matter & Ozone
  - CWS - Mercury
  - CWS - Dioxins & Furans
  - CWS - Benzene
  - CWS - Petroleum Hydrocarbons
  - Economic Integration Task Group
  - Environmental Assessment. Sub-agreement
  - Environmental Emergencies Sub-agreement
  - Environmental Inspection and Enforcement Sub-agreement
  - Environmental Monitoring and Reporting Sub-agreement
  - Environmental Planning and Protection Committee
  - Hazardous Waste Task Group
  - NOX/VOCS Management Plan
  - Packaging Task Group
  - Pollution Prevention Network
  - Research and Development Sub-agreement
  - Soil Quality Guideline Task Group
  - Water Quality Guideline Task Group
  - National Air Issues Coordination Committee – Air (NAICC-A)
    - Acidifying Emissions Task Group
    - Benzene Working Group
    - F-P Working Group on Controls Harmonization (ODS)
    - HAPS Task Group
    - NEIPTG
      - Public Education Task Group
      - Science Network
      - Smog Task Group
      - Socio-Economic Analysis Task Group
      - Transportation Working Group

- NAICC-Climate Change (CC)
- CEOH Drinking Water Subcommittee
- CEPA- FPAC
  - Strategic Options Process
  - Toxic Substances
  - Working Group on Air Quality Objectives and Guidelines
- City of Regina Drinking Water Advisory Task Force
- City of Saskatoon Boil Water Advisory Task Force
- Climate Change
  - Government Committee
  - SE Core Group
  - Stakeholder Committee
- Data Integration Working Group (SWC)
- Data Working Group (Alberta Environment./Federal.)
- Disinfection Byproducts Task Group - Water Quality Issues Subgroup (Health Canada)
- Ecological Indicator Working Group for Soils/Water
- Ecosystem Management Guidelines Group
- Ecosystem Monitoring Alliance Group
- Environment Canada/SE Accord
- Environmental Effects Monitoring - Metal Mining
- Environmental Effects Monitoring - Pulp and Paper
- ESQUADAT Steering Committee
- Executive Secretaries Forum
- Fish Culture Project - Lake Diefenbaker
- F-P-T Committee on Pest Management & Pesticides
- Glycol Dehydrator Working Group
- Information Management Steering Committee
- Integrated Policy Working Group
- McKenzie R. Basin Trans-boundary Water
- National Soil and Water Conservation Program
- OECD Task Force on Endocrine Disruptors
- Organizational Development Working Group
- Paper Product Stewardship Committee
- Partners for Saskatchewan River Basin
- Partnership with Saskatchewan Agriculture and Food
- Pesticide Container Management Association
- Prairie Provinces Water Board
  - Committee on Water Quality
  - Steering Committee
  - Task Force on Data Management Systems
- Provincial Contaminants in Fish Committee
- Rail Line Abandonment Committee
- Regina, Yorkton and Southeast Aquifers Technical Committee

Riparian Zone Management Committee
Saskatchewan's Evaluation of the Oil Sands Working Group
Saskatchewan – Manitoba Accord
SARCAN
Saskatchewan Association of Resource Recovery Corporation
Saskatchewan Evaluation of Oil Sands Working Group
Saskatchewan/Manitoba Accord
Saskatchewan River Issues Committee
Souris River Bilateral Water Quality Monitoring Task Group
SPIGEC
Saskatchewan Scrap Tire Corporation (SSTC)
Saskatchewan Waste Reduction Council (SWRC)
Saskatchewan Water and Wastewater Association (SWWA) Executive
Union Management Advisory Committee
Uranium Core Group
Water Issues Group
West Nile Virus Technical Sub-committee

Stakeholders

The following is a list of the Branch's major stakeholders. This is not a complete listing, but it provides an indication of those groups with which the branch has frequent on-going contact.

Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS)
Canadian Association of Petroleum Producers (CAPP)
Canadian Bankers Association
Canadian Federation of Independent Business (CFIB)
Canadian Petroleum Products Institute (CPPI)
Consumers Cooperative / New Grade Upgrader
Environment Canada
Federated Cooperatives Limited
Husky Oil
IPSCO
Interprovincial Pipeline
IMC - Kalium
Saskatchewan Action Foundation for the Environment
Saskatchewan Association of Automotive Repairers
Saskatchewan Association of Rehabilitation Centres (SARC)
Saskatchewan Association of Rural Municipalities (SARM)
Saskatchewan Chamber of Commerce
Saskatchewan Eco-Network (SEN)
Saskatchewan Energy Corporation
Saskatchewan Environment and Industry Managers Association (SEIMA)
Saskatchewan Environmental Society (SES)
Saskatchewan Mining Association
Saskatchewan Potash Producers Association
Saskatchewan Power Corporation (SPC)
Saskatchewan Research Council (SRC)
Saskatchewan Urban Municipalities Association (SUMA)
Saskatchewan Waste Reduction Council (SWRC)
Saskatchewan Water and Wastewater Association (SWWA)
Saskatchewan Water Corporation

Partnerships

The Branch's formal partnership agreements are with the following organizations:

Canadian Home Builders Association
Canadian Petroleum Products Institute
City of Moose Jaw
City of Regina
City of Saskatoon
Crop Life Canada
Environment Canada
First Nations Water & Wastewater Operator Association
IMC-Kalium
IPSCO
Manitoba Environment
Moose Jaw Asphalt
SARCAN
SARRC
Sask Power
Sask Water
Saskatchewan Association of Rural Municipalities
Saskatchewan Graphic Arts Industry Association
Saskatchewan Institute of Applied Science and Technology
Saskatchewan Urban Municipalities Association
Saskatchewan Water and Wastewater Association
Saskatchewan Wheat Pool
Saskatoon Chemicals
SaskEnergy
SaskferCo
SSTC
Weyerhaueser

Legislative Framework

Environmental legislation and regulations administered by the Branch include:

- **Environmental Management & Protection Act, 2002**
    - Water Regulations, 2002
    - Municipal Refuse Management Regulations
    - Environmental Spill Control Regulations
    - Hazardous Substances & Waste Dangerous Goods Regulations
    - Used Oil Collection Regulations
    - PCB Waste Storage Regulations
    - Mineral Industry Environmental Protection Regulations
    - The Scrap Tire Management Regulations
    - Ozone Depleting Substances Control Regulations
- **Clean Air Act**
    - Clean Air Regulations
    - Potash Refining Air Emissions Regulations
- **Litter Control Act**
    - Litter Control Regulations
    - Litter Control Designation Regulations